

9.	PHYSICAL AND CHEMICAL PROPERTIES
Physical state:	Liquefied gas
Colour:	Colourless
Odour:	Distinctive and unpleasant if starved, odourless if unstarved
Boiling point:	circa -45°C Propane and 0°C Butane
Vapour pressure:	circa 650 kPa at 20°C
Density:	circa 555 kg/m ³ at 15°C
Vapour density (air=1):	circa 1.8 at 15°C
Flash point:	-104°C
Flammability limit - lower:	2.2 %(V/V)
Flammability limit - upper:	10 %(V/V)
Auto-ignition temperature:	> 450°C
Explosive properties:	In use, may form flammable/explosive vapour-air mixture
Oxidising properties:	Not applicable
Solubility in water:	Data not available
n-octanol/water partition coefficient:	log P _{ow} = 2.3 (estimated value)
Evaporation rate:	Data not available

10. STABILITY/REACTIVITY

Stability:	Stable.
Conditions to avoid:	Heat, flames and sparks.
Materials to avoid:	Strong oxidising agents.
Hazardous decomposition products:	The substances arising from the thermal decomposition of these products will largely depend upon the conditions bringing about decomposition. The following substances may be expected from normal combustion: carbon dioxide, carbon monoxide, polycyclic aromatic hydrocarbons, unburnt hydrocarbons, unidentified organic and inorganic compounds, particulate matter, nitrogen oxides.

11. TOXICOLOGICAL INFORMATION

Basis for assessment:	Toxicological data have not been determined specifically for this product. Information given is based on data on the components and the toxicology of similar products.
Acute toxicity - oral:	Data not available.
Acute toxicity - dermal:	Data not available.
Acute toxicity - inhalation:	LC ₅₀ >5 mg/l (Gas).
Eye irritation:	Not irritating. Liquid causes odd burns.
Skin irritation:	Not irritating. Liquid causes odd burns.
Respiratory irritation:	Not irritating (Gas).
Skin sensitisation:	Not expected to be a skin sensitizer.
Carcinogenicity:	This product has not been evaluated in long-term chronic exposure tests. May contain 1, 3-butadiene, classified as a Category 1 carcinogen. Other components are not known to be associated with carcinogenic effects.
Mutagenicity:	This product has not been evaluated in long-term chronic exposure tests. May contain 1, 3-butadiene, classified as a Category 2 mutagen, at a concentration of less than 0.1% (m/m). Other components are not known to be associated with mutagenic effects.
Human effects:	See Section 4 for information regarding acute effects to humans.

12.	ECOLOGICAL INFORMATION
Basis for assessment:	Ecotoxicological data have not been determined specifically for this product. Information given is based on data on the components and the toxicology of similar products.
Mobility:	Evaporates extremely rapidly from water or soil surfaces. Disperses rapidly in air.
Persistence/degrad ability:	Oxidises rapidly by photochemical reactions in air.
Bioaccumulation:	Does not bioaccumulate.
Ecotoxicity:	Low acute toxicity to mammals.
Sewage treatment:	Not applicable.
Other information:	In view of the high rate of loss from solution, the product is unlikely to pose a significant hazard to aquatic life.

13. DISPOSAL CONSIDERATIONS

Precautions:	See Section 8.
Product disposal:	Given the nature and uses of this product, the need for disposal seldom arises. If necessary, dispose by controlled combustion in purpose-designed equipment. If this is not possible, contact the supplier.
Container disposal:	Return purchased or empty cylinders to the supplier.
Local legislation:	(To be provided by the Easigas on request)

14. TRANSPORT INFORMATION

UN Number:	1075
UN Class/Packing Group:	2.1, Packing Group not applicable
UN Proper Shipping Name:	Hydrocarbon Gas Mixture, Liquefied, n.o.s. (Propane Butane Mixture)
UN Number (sea transport, IMO):	1075
IMO Class/Packing Group:	2.1, Packing Group not applicable
IMO Symbol:	Flammable Gas
IMO Marine Pollutant:	No
IMO Proper Shipping Name:	Hydrocarbon Gas Mixture, Liquefied, n.o.s. (Propane Butane Mixture)
ADR/RID Class/Item:	2F
ADR/RID Symbol:	Flammable Gas
ADR/RID Kemler Number:	23-1965
ADR/RID Proper Shipping Name:	Hydrocarbon Gas Mixture, Liquefied, n.o.s. Mixture A01 Mixture A02 and Mixture A0 (Trade name: butane)
ADNR Class/Item:	(To be provided by the supplier)
UN Number (air transport, ICAO):	1075
IATA/ICAO Class/Packing Group:	2.1, Packing Group not applicable
IATA/ICAO Symbol:	Flammable Gas
IATA/ICAO Proper Shipping Name:	Hydrocarbon Gas Mixtures, Liquefied, n.o.s. (Propane Butane Mixture)
Local regulations:	(To be provided by the supplier)
Other information:	UN Number 1075 is an AEGPL recommendation. Other numbers may be required to be used locally. Transport of this product on passenger aircraft is forbidden.

15. REGULATORY INFORMATION

EC Label name:	Contains propane and butane
EC Classification:	Extremely Flammable

EC Symbols:	F+
EC Risk Phrases:	R12 Extremely flammable
EC Safety Phrases:	S2 Keep out of the reach of children. S9 Keep container in a well-ventilated place. S16 Keep away from sources of ignition - No Smoking.
ENECS (EC):	All components listed
National legislation:	SABS 087 Standards
Other information:	Mobile gas cylinders containing butane, propane or liquid petroleum gas are currently exempt from the health labelling provisions of European Commission Directive 67/548/EEC.

16. OTHER INFORMATION

Relevant R phrases:	R12 Extremely flammable
Uses and restrictions:	Fuel for use in suitably designed domestic and industrial combustion equipment, domestic cooking appliances and motor vehicles. Also used as an aerosol propellant and a feedstock for the petrochemical industry. This product must not be used in applications other than the above without first seeking the advice of the supplier. Abuse involving repeated and prolonged exposures to high concentrations of vapour (starving) may cause death by either asphyxiation or cardiac arrest. A severe irritation of the mucous membranes may occur, caused by freezing the hands and causing the lungs to fill with fluid - an effect similar to drowning.
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Revisions highlighted:	Section 2: List of dangerous components added, Section 3 and 7: Editorial changes, Sections 6 and 8: Revised personal protection, Section 12: Estimated Ecotoxicity data deleted, Changes indicated by vertical bar to left of text.
SDS distribution:	This document contains important information to ensure the safe storage, handling and use of this product. The information in this document should be brought to the attention of the person in your organisation responsible for advising on safety matters.
Other information:	The meaning of the Risk phrases quoted in Section 2 of this safety data sheet that relate to the classification of 1,3-butadiene and ethyl mercaptan but that do not apply to the classification of this product are: R20 Harmful by inhalation R45 May cause cancer R46 May cause heritable genetic damage R50 Very toxic to aquatic organisms R53 May cause long-term adverse effects in the aquatic environment Useful references include the following: The Institute of Petroleum, London, 'Model Code of Safe Practice', Part 9, current edition, The UK LP Gas Association Codes of Practice, CONCAWE, Brussels, 'Liquefied petroleum gas', Product Dossier No 92/02, 1992.

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not be construed as guaranteeing any specific property of the product.